

under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Amendments

In the Claims:

Please ~~cancel~~[✓] claims 1-10 and 23-62 without prejudice or disclaimer. Applicants reserve the right to prosecute the subject matter contained therein in one or more continuation/divisional application.

Please amend the following claims:

Please substitute the following claim 11 for the currently pending claim 11:

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11. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Tyr64.

Please substitute the following claim 13 for the currently pending claim 13:

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13. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Arg116.

Please substitute the following claim 15 for the currently pending claim 15:

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15. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Lys152.

Please substitute the following claim 17 for the currently pending claim 17:

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17. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Gln190.

[Please substitute the following claim 18 for the currently pending claim 18:]

18. (Once amended) The reverse transcriptase of claim 17, wherein Gln190 is replaced with a phenylalanine.

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[Please substitute the following claim 19 for the currently pending claim 19:]

19. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Thr197.

Please substitute the following claim 21 for the currently pending claim 21:

21. (Once amended) The reverse transcriptase of claim 63, wherein said mutation is at position Val223.

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Please add the following new claims:

63. (New) An M-MLV reverse transcriptase which has been mutated to increase fidelity, with the proviso that said mutation is not at amino acid position Tyr222.

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64. (New) The reverse transcriptase of claim 63, wherein said mutation is at position Asp124.

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65. (New) The reverse transcriptase of claim 63, wherein said mutation is at position His126.

66. (New) The reverse transcriptase of claim 63, wherein said mutation is at

position Tyr133.

67. (New) The reverse transcriptase of claim 63, wherein said mutation comprises a mutation at an amino acid position selected from the group consisting of His204, Tyr306, Phe309, or a combination thereof.

68. (New) The reverse transcriptase of claim 67, wherein His204 is replaced with arginine.

69. (New) The reverse transcriptase of claim 67, wherein Tyr306 is replaced with lysine.

70. (New) The reverse transcriptase of claim 67, wherein Phe309 is replaced with asparagine.

71. (New) An M-MLV reverse transcriptase, wherein said reverse transcriptase comprises at least one mutation at an amino acid position that interacts with a primer-template, with the proviso that said mutation is not at amino acid position Tyr222.

72. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Tyr64.

73. (New) The reverse transcriptase of claim 72, wherein Tyr64 is replaced with a tryptophan.

74. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Arg116.

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75. (New) The reverse transcriptase of claim 74, wherein Arg116 is replaced with a methionine.

76. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Lys152.

77. (New) The reverse transcriptase of claim 76, wherein Lys152 is replaced with an arginine.

78. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Gln190.

79. (New) The reverse transcriptase of claim 78, wherein Gln190 is replaced with a phenylalanine.

80. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Thr197.

81. (New) The reverse transcriptase of claim 80, wherein Thr197 is replaced with an alanine.

82. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Val223.

83. (New) The reverse transcriptase of claim 82, wherein Val223 is replaced with a histidine.

84. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Asp124.

85. (New) The reverse transcriptase of claim 71, wherein said mutation is at position His126.

86. (New) The reverse transcriptase of claim 71, wherein said mutation is at position Tyr133.

87. (New) The reverse transcriptase of claim 71, wherein said mutation comprises a mutation at an amino acid position selected from the group consisting of His204, Tyr306, Phe309, or a combination thereof.

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88. (New) The reverse transcriptase of claim 87, wherein His204 is replaced with arginine.

89. (New) The reverse transcriptase of claim 87, wherein Tyr306 is replaced with lysine.

90. (New) The reverse transcriptase of claim 87, wherein Phe309 is replaced with asparagine.

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91. (New) An MMLV reverse transcriptase, wherein said reverse transcriptase comprises at least one mutation at an amino acid position selected from the group consisting of Tyr64, Arg116, Lys152, Gln190, Thr197, Val223, Asp124, His126, Tyr133, His204, Tyr306, and Phe309.

92. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Tyr64.

93. (New) The reverse transcriptase of claim 92, wherein Tyr64 is replaced with a tryptophan.

94. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Arg116.

95. (New) The reverse transcriptase of claim 94, wherein Arg116 is replaced with a methionine.

96. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Lys152.

97. (New) The reverse transcriptase of claim 96, wherein Lys152 is replaced with an arginine.

98. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Gln190.

99. (New) The reverse transcriptase of claim 98, wherein Gln190 is replaced with a phenylalanine.

100. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Thr197.

101. (New) The reverse transcriptase of claim 100, wherein Thr197 is replaced with an alanine.

102. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Val223.

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103. (New) The reverse transcriptase of claim 102, wherein Val223 is replaced with a histidine.

104. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Asp124.

105. (New) The reverse transcriptase of claim 91, wherein said mutation is at position His126.

BL 106. (New) The reverse transcriptase of claim 91, wherein said mutation is at position Tyr133.

107. (New) An MMLV reverse transcriptase, wherein said reverse transcriptase comprises at least one mutation at an amino acid position selected from the group consisting of His204, Tyr306, Phe309, or a combination thereof.

108. (New) The reverse transcriptase of claim 107, wherein His204 is replaced with arginine.

109. (New) The reverse transcriptase of claim 107, wherein Tyr306 is replaced with lysine.

110. (New) The reverse transcriptase of claim 107, wherein Phe309 is replaced

with asparagine.

111. (New) The reverse transcriptase of any one of claims 63, 71, 91, and 107, wherein said reverse transcriptase has reduced or substantially reduced RNase H activity.

112. (New) The reverse transcriptase of claim 111, wherein said reverse transcriptase comprises at least one mutation at an amino acid position selected from the group consisting of Asp544, Asp583, Glu562, or a combination thereof.

113. (New) The reverse transcriptase of claim 112, wherein Asp544 is replaced with glycine.

114. (New) The reverse transcriptase of claim 112, wherein Asp583 is replaced with asparagine.

115. (New) The reverse transcriptase of claim 112, wherein Glu562 is replaced with glutamine.

116. (New) The reverse transcriptase of any one of claims 63, 71, 91, and 107, further comprising at least one mutation in the RNase H domain.

117. (New) The reverse transcriptase of any one of claims 63, 71, 91, and 107, further comprising at least one mutation selected from the group consisting of Asp544, Asp583, Glu562, or a combination thereof.

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118. (New) The reverse transcriptase of claim 117, wherein Asp544 is replaced with glycine.

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119. (New) The reverse transcriptase of claim 117, wherein Asp583 is replaced with asparagine.

120. (New) The reverse transcriptase of claim 117, wherein Glu562 is replaced with glutamine.
